

## **Developing a rapid composting machinery system using Berkeley method**

H.M.A.K. Handapangoda\*

Department of zoology and environmental management, Faculty of Science, University of Kelaniya, Sri Lanka

**\*Corresponding author: kosalahandapangoda@kln.ac.lk**

Municipal solid waste generation and management in most cities especially in developing countries have emerged as one of the stubborn environmental problems at present. This scenario could be attributed to low level of technology as it is not sophisticated and not sufficient to deal with the excessive quantity of waste generation. Recognizing those noteworthy amounts of organic waste fraction of MSW in developing nations like Sri Lanka, there ought to make necessary feasible fitting systems to convert this huge amount into a resource. Composting, one of the environmentally feasible methods that convert organic waste into useful materials brings several drawbacks. This paper suggests a system with computerized automated machineries with the aim of increasing the rate of composting in a comparatively short time period. Berkeley method composting is taken as the principle for this system. The system consists with a shredder, a pill rotator (mixer), an air flow controller, and moisture and temperature controllers. The system is a closed system that implements favorable conditions for the composting process. Air flow, moisture level and temperature can also be controlled in the system. Purpose of shredder is to reduce the size of waste that further facilitate fast composting. Humidity and temperature sensors are used to keep compost pill in optimal level of conditions. Pill rotator (mixer) is rotated periodically in a given time period to facilitate proper mixing to pill. In addition, shredder size, pill rotating time, air supply and moisture and temperature can be changed on waste composition. Advancement of this method is to convert organic materials into usable form in short time period with less space and labor requirement. Energy requirement for the operation process can be generated by solar power is another added advantage of the method. However, further development is needed to overcome bottlenecks and gaps of the system.

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